

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE J		PAGE OF PAGES 1 27	
2. AMENDMENT/MODIFICATION NO. 0002		3. EFFECTIVE DATE 13-Apr-2005		4. REQUISITION/PURCHASE REQ. NO. W16ROE-5068-0627		5. PROJECT NO.(If applicable)	
6. ISSUED BY USA ENGINEER DISTRICT, NEW YORK ATTN: CENAN-CT ROOM 1843 26 FEDERAL PLAZA NEW YORK NY 10278		CODE W912DS		7. ADMINISTERED BY (If other than item 6) CIVIL WORKS SECTION USACOE-NY DISTRICT ENGRG CIVIL WORKS SECT NEW YORK NY 10278-0090		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				<input checked="" type="checkbox"/> X		9A. AMENDMENT OF SOLICITATION NO. W912DS-05-B-0011	
				<input checked="" type="checkbox"/> X		9B. DATED (SEE ITEM 11) 04-Apr-2005	
						10A. MOD. OF CONTRACT/ORDER NO.	
						10B. DATED (SEE ITEM 13)	
CODE				FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).							
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The purpose of this amendment is to include necessary changes and additions to the technical specification in connection with Waterbury Dam Mitigation Project, Waterbury, Vermont. Section 00800 in the original solicitation should be replaced by section 00800 attached hereto. Section 00800A hereby attached is an addition to the technical specification. Bid opening for this solicitation remains 03 May 2005 at 11:00 A.M. All other terms and conditions of the basic contract remain unchanged.							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				TEL: _____ EMAIL: _____			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
_____ (Signature of person authorized to sign)				BY _____ (Signature of Contracting Officer)		13-Apr-2005	

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

CHANGES TO TECH SPEC

Replace Current Section 00800 with the attached Revised Section 00800

Add the attached Section 00800A after Section 00800.

Section 01355A, Page 6, Paragraph 1.8, Second Sentence add **"Representative of the State of Vermont, Department of Forest, Parks and Recreation"** after "Contracting Officer"

Section 01355A, Page 7, Paragraph 1.12.2 add to the end of the paragraph the following: **"The Contractor shall follow State of Vermont Quarantined Considerations for hemlock wooly aldegid."**

Section 01551, Page 1, Part 1 General, 1.1 Scope of Work: Add the following as Paragraph 4: **"Tress along the access road shall be pruned of branches to a roadway height clearance of 15 feet."**

Section 01570, Page 2, Part 3 Execution, 3.1, Fourth Paragraph, First Sentence add the following **"past the existing park road pavement"** after "...site access road"

Section 02230, Page 1, Part 1 General, 1.1 Scope of Work, Third Paragraph, Last Sentence: add **" with the concurrence of the State of Vermont, Department of Forests, Parks, and Recreation"** after "Contracting Officer"

Section 02230, Page 4, Paragraph 3.8.2: delete reference to **Section 01552**

Section 02230, Page 4, Paragraph 3.8.2 add following after the last sentence: **"The Contractor may be responsible for moving such structures during and/or near the completion of the project in order to reestablish campsites impacted by the construction project."**

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SP ECIAL CONTRACT REQUIREMENTS

1. COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

a. The Contractor shall be required to (i) commence work under this contract within 5 calendar days after the date the Contractor receives the notice to proceed, (ii) prosecute the work diligently, and (iii) complete the entire work ready for use not later than 180 days after the date the Contractor receives the notice to proceed. The time stated for completion shall include final cleanup of the premises.

b. Location: The site of work is at the Little River State Park, Waterbury Dam Reservoir, Waterbury, Vermont.

c. The Contractor shall furnish all labor, materials, equipment and services (except those furnished by the Government) for the following work: Stabilization of eroding slope at Waterbury Dam Reservoir.

d. All work shall be in accordance with the drawings and specifications or instructions attached hereto and made a part thereof, or to be furnished hereafter by the Contracting Officer and subject in every detail to his supervision, direction, and instructions

e. Magnitude of Construction Project: The estimated value of the work is between \$250,000 and \$500,000.

2. LIQUIDATED DAMAGES – CONSTRUCTION (APR 1984)

a. If the Contractor fails to complete the work within the time specified in the Contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of \$426.00 for each day of delay.

b. If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work

c. If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted. (FAR 52.212-5)

d. At a time before the project is physically complete but is functionally complete to the satisfaction of the Government, the Government at its sole discretion may agree to accept transfer of the facility or project provided that the remaining work to be done ("punchlist") is completed no later than 30 days from the date of transfer. In this case the Contractor shall pay liquidated damages for punchlist items not completed in the daily amount of \$100 per day commencing after 30 days of project transfer or after date required for project completion (including all extensions), whichever occurs later.

3. EQUAL OPPORTUNITY PREAWARD CLEARANCE OF SUBCONTRACTS (1984 APR)

Notwithstanding the clause of this contract entitled "Subcontracts" the Contractor shall not enter into a first-tier subcontract for an estimated or actual amount of \$1 million or more without obtaining in writing from the Contracting Officer a clearance that the proposed subcontractor is in compliance with the equal opportunity requirements and therefore is eligible for award.

4. CERTIFICATES OF COMPLIANCE

Any Certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in 4 copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements. (ECI 7- 670.3)

5. BID GUARANTEE

See Bid Guarantee Clause of Section 00700, CONTRACT CLAUSES.

6. CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (52.236-7001)

See Contract Drawings, Maps and Specifications Clause of Section 00700, CONTRACT CLAUSES. For list of drawings see Index of Drawings.

7. RECORD DRAWINGS

a. General: The Contractor will maintain as-built drawings during the construction period and will submit final record drawings at the completion of individual facilities. The Government will provide to the Contractor the CAD (Computer-Aided Drafting) files consisting of compact (computer) disks or magnetic media of the drawing files in the appropriate CAD format (i.e. "Microstation", "Autocad", etc.) for the project. The Contractor is required to make prints or mylars from the CAD files and continuously maintain drawings to show current as-built conditions for the duration of the construction. Except for updates as indicated below, the Contractor may maintain as-built drawings by marking up drawings by hand or by CAD methods. Scanned drawings will not be acceptable. If the Government cannot provide CAD files for the project drawings, mylar (reproducible) drawings will be provided. The contractor will then be required to comply with all requirements indicated herein by the use of hand drafting

b. Progress As-built Prints: During construction the Contractor is responsible for maintaining up to date one set of paper prints to show as-built construction conditions. These prints shall be kept current and available on the job site at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accordingly and neatly recorded as they occur by means of details and notes. The as-built prints will be jointly inspected for accuracy and completeness by the Contracting Officer's Representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Progress as-builts shall show the following information, but not limited thereto:

- (1) The location and description of any utility lines, valves, or other installations of any kind within the construction area. The location includes dimensions to permanent features.
- (2) The location and dimensions of any changes with the building and structure.
- (3) Correct grade or alignment of roads, structures or utilities if any changes were made from the contract plans.
- (4) Correct elevations if changes were made in site grading
- (5) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabricated, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

(6) The topography and grades of all drainage installed or affected as part of the project construction.

(7) All changes, which result from contract modifications.

(8) Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built prints.

(9) All amendments to the contract drawings issued during the solicitation period shall be posted on the as-built drawings.

c. Hand Drafting: If mylars only are provided to the Contractor, they shall be updated using hand drafting. Only personnel proficient in the preparation of engineering drawings to standards satisfactory and acceptable to the Government shall be employed to modify the mylar reproduction drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be neat, clean and legible, and shall match the adjacent line work and/or lettering being annotated in type, density, size and style. All drafting work shall be done using the same medium (pencil, plastic lead or ink) that was employed on the original contract drawings and with graphic lead on paper base material. The title block to be used for any new as-built drawings shall be similar to that used on the original contract drawings

d. Protection of Records: The Contractor shall be responsible for the protection and safety of mylars and CAD record until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at his expense.

e. 50% As-Built Update: Not required.

f. Preliminary Record Drawing Submittal: At least thirty calendar (30) days before the anticipated date of final acceptance inspection the Contractor shall deliver two copies of progress prints showing final as-built conditions to the Contracting Officer for review and approval. These prints shall correctly show all the features of the project as it has been constructed, adding such additional drawings as may be necessary. They shall be printed from the CAD files updated in the appropriate CAD program, or from updated mylars if mylars only were provided to the Contractor. Within ten days, the Government will provide the Contractor one set of prints indicating required corrections to the preliminary submittal. Contractor will correct and resubmit within 5 days. Any required subsequent review and resubmission periods will each be accomplished within 5 days. Upon Government approval of the preliminary submittal, the Contractor will prepare final record drawings.

g. Record Drawing Submission: In the appropriate CAD program each drawing shall be marked with the words "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in font which will print at least 3/16" high. All revisions to the original contract drawings will be dated in the revision block. All prints and mylars must be reproduced from the updated CAD files. If mylars only were provided to the Contractor, they shall be hand-lettered or stamped as indicated above, and revisions shown in revision block. A minimum of 5 calendar days before the anticipated date of final acceptance inspection of the project the Contractor shall deliver to the Contracting Officer:

Three (3) CD's (ROM) of CAD files of Record Drawings.

One (1) set of Mylar Record Drawings

One (1) copy of prints of Record Drawings

Failure to make an acceptable submission of Record Drawings will delay the Final Acceptance Inspection for the project and shall be cause for withholding any payment due the Contractor under this contract.

h. Property: All paper prints, reproducible drawings and CAD files will become property of the Government upon final approval. Approval and acceptance of the final record drawings shall be accomplished before final payment is made to the Contractor

i. Payment: No separate payment will be made for the as-built and record drawings or updating of CAD files required under this contract, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor.

8. DESIGNATION OF PROPERTY ADMINISTRATOR

Not Used.

9. PHYSICAL DATA

Information and data furnished or referred to below is furnished for the Contractor's information. However, it is expressly understood that the Government will not be responsible for any interpretation or conclusion drawn therefrom by the Contractor.

a. Weather Conditions: Climatological data determined from records of the U.S. Weather Bureau Station, Waterbury, VT.

Mean Annual Temperature: 42.8 degrees F

Mean Annual Precipitation: 43.23 inches

See also paragraph entitled TIME EXTENSIONS FOR UNUSUALLY SEVER WEATHER.

a. Transportation Facilities:

Highways and Roads: Interstate Route 89 and US Route 2 serve the locality of the proposed work. The Contractor shall make his own investigation of available roads for transportation, of load limits of bridges and roads, and other road conditions affecting the transportation of materials, supplies, equipment and other facilities to site. Roads within the work area proposed to be used by the Contractor, shall be subject to prior approval of the Contracting Officer and such roads, if used, shall be maintained throughout construction and shall be restored to as good condition as existed prior to their use. The Contractor shall also construct such temporary haul roads and bridges as may be necessary for the conduct of his work. Any such temporary construction shall be restored to its original condition. All costs for the use of existing transportation facilities, for the construction of temporary facilities, and for maintenance, repair, removal and restoration shall be borne by the Contractor.

10. PAYMENT FOR MATERIALS DELIVERED OFF-SITE

Pursuant to the Contract Clauses in this contract titled "Payments Under Fixed-Price Construction Contracts", materials delivered to the Contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the Contract Clauses are fulfilled. Payment for items delivered to locations other than the work site will be limited to those materials which have been approved, if required by the technical provisions; those materials which have been fabricated to the point where they are identifiable to an item of work required under this contract. Such payment will be made only after receipt of paid or receipted invoices or invoices with cancelled check showing title to the items in the prime contractor and including the value of materials and labor incorporated into the item.

11. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

a. Allowable cost for construction and equipment in sound workable condition owned or controlled and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data when the government can determine both ownership and operating costs for each piece of equipment or equipment groups of similar serial and

series from the Contractor's accounting records. When both ownership and operating costs cannot be determined from the Contractor's accounting records, equipment costs shall be based upon the applicable provisions of EP 1110-1-8*, "Construction Equipment Ownership and Operating Expense Schedule," Region 1. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified Otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces or equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retrospective pricing, the schedule in effect at the time the work was performed shall apply.

(* This manual can be ordered from the Government Printing Office by calling Tel. No. (202) 783-3238. There is a charge for the manual.)

b. Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36 substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease-purchase or sale-leaseback arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated leases are allowable. Costs for major repair and overhaul are unallowable.

c. When actual equipment costs are proposed and the total amount of the pricing action is over \$25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the Contractor grants to the Contracting Officer or an authorizing representative the right to examine those books, records, documents and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement the Contractor shall certify that the equipment costs or pricing data submitted are accurate, complete and current.

12. ALTERATIONS IN CONTRACT (APR 1984)

Portions of this contract are altered as follows:

Add the following sentence to paragraph "g" of basic contract clause, SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (1984 APR):

"Upon completing the work under this contract, the Contractor shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted." Alt.1 (APR 1984)(FAR 52.236-21)

13. AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

The responsibility shall be upon the Contractor to provide and maintain at his own expense adequate supply of electricity, water, and sanitary facilities for his use for construction purposes and the use of his construction forces and to install and maintain necessary supply connections for same, but only at such locations and in such manner as may be approved by the Contracting Officer's representative. All installations shall comply with all applicable codes, standards and requirements. Before final acceptance, temporary connections installed by the Contractor shall be removed in a manner satisfactory to the Contractor Officer.

14. LAYOUT OF WORK

a. The Contractor will establish at his own expense the base lines and bench marks at the site of the work: (Monuments and bench marks as shown in the specifications).

b. From the base lines and bench marks established, the Contractor shall complete the layout of the work and shall be responsible for all measurements that may be required for the execution of the work to the location and limit

marks prescribed in the specifications or on the contract drawings, subject to such modifications as the Contracting Officer may require to meet changed conditions or as a result of necessary modifications to the contract work.

c. The contractor shall furnish, at his own expense, such stakes, templates, platforms, equipment, tools and material, and all labor as may be required in laying out any part of the work from the base lines and bench marks. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other marks established until authorized to remove them, and if such marks are destroyed by the Contractor, or through his negligence prior to their authorized removal, they shall be replaced by the Contractor, at his own expense, if directed by the Contracting Officer. The Contracting Officer may require that work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking of the work.

15. FIELD OFFICE

Not Required.

16. BULLETIN BOARD

Immediately upon beginning of work under this contract, the Contractor shall provide at the job site a weatherproof glass-covered bulletin board for displaying the fair employment poster, wage rates, and safety bulletins and posters. Emergency telephone numbers and reporting instructions for ambulance, physician, hospital, fire and police shall be posted. The bulletin board shall be temporary, and shall be located in a conspicuous place, agreed upon by the State of Vermont, Department of Forests, Parks, and recreation, easily accessible to all and legible copies of the aforementioned data shall be displayed until work under the contract is completed. No direct payment will be made for the bulletin board.

17. QUANTITY SURVEYS (APR 1984)

a. Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place

b. The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested. The surveys shall be conducted by a surveyor licensed in the State of Vermont. All these surveys shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a specific instance. The Government shall make such computations as are necessary to determine the quantities of work performed or finally in place. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested

c. Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer's representative. (FAR 52.236-16)

18. SUPERINTENDENCE OF SUBCONTRACTORS (JAN 1965)

a. The Contractor shall be required to furnish the following, in addition to the superintendence required by the Contract Clause titled, "SUPERINTENDENCE BY THE CONTRACTOR

(1) If more than 50% and less than 70% of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

(2) If 70% or more of the value of the work is subcontracted, the Contractor shall be required to furnish two such superintendents to be responsible for coordinating, directing, inspecting and expediting the subcontract work

b. If the Contracting Officer, at any time after 50% of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirement for additional superintendence subject to the right of the Contracting Officer to reinstate such requirement if at any time during the progress of the remaining work he finds that satisfactory progress is not being made. (DoD FAR Supplement 52.236-7008)

19. SCHEDULING AND DETERMINATION OF PROGRESS

Pursuant to the Contract Clause, SCHEDULES FOR CONSTRUCTION CONTRACTS, the Contractor shall prepare and submit for approval a practicable project schedule. The type of schedule and detailed requirements as well as timing of this submittal shall be as specified in specification section 01311 PROJECT SCHEDULE-BAR CHART.

This schedule will be the medium through which the timeliness of the Contractor's construction effort is appraised. When changes are authorized that result in contract time extensions, Contractor shall submit a modified schedule for approval by the Contracting Officer.

The terms of Contract Clause, SCHEDULES FOR CONSTRUCTION CONTRACTS, with reference to overtime, extra shifts, etc., may be invoked when the Contractor fails to start or complete work features or portions of same by the time indicated by the milestone dates on the approved project schedule, or when it is apparent to the Contracting Officer from the Contractor's actual progress that these dates will not be met.

Neither on the project schedule as originally submitted nor on any updated periodic schedules which the Contractor is required to prepare and submit, shall the actual progress to be entered include or reflect any materials which even though on the site, are not yet installed or incorporated in the work. For payment purposes only, an allowance will be made by the Contracting Officer of up to 100 percent of the invoiced cost of materials or equipment delivered to the site but not incorporated into the construction, pursuant to Contract Clauses, PAYMENT UNDER FIXED- PRICE CONSTRUCTION CONTRACTS. The making of such an allowance will be contingent upon a determination by the Contracting Officer that the Contractor's compliance with the quality control requirements of the contract is more than satisfactory.

20. PROCEDURES FOR SUBMISSION AND PAYMENT OF ALL CONTRACT PAYMENTS

In addition to the requirements contained in the Contract Clause entitled "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS" and to implement the requirements of the Prompt Payment Act Amendments of 1988, P.L. 100-496, the following shall apply to all payments made under this contract:

a. At the time of submission of the progress chart, the contractor shall submit for approval by the Contracting Officer or his authorized representative a breakdown of the contract work which shall be to the degree of detail required by the Contracting Officer or his representative to effect reasonable progress payments. The Contracting Officer or his representative shall review this breakdown within 30 calendar days after receipt and either advise the contractor that it is approved or disapproved, and if disapproved the reasons for disapproval. Only after the breakdown is approved shall any payment invoice be accepted from the contractor and any payment made to him. The Contracting Officer can determine if it is in the best interest of the Government to make payment without an approved breakdown, however, in no case shall more than 10% of the contract amount be paid unless the breakdown is approved.

b. The contractor shall submit his request for payment by submission of a proper invoice to the office or Person(s) designated in subparagraph (c). For purposes of payment a "proper invoice" is defined as the following:

(1) An estimate of the work completed in accordance with the approved breakdown indicating the percentage of work of each item and the associated costs.

(2) A properly completed Eng Form 93 and 93a (where required).

(3) All contractual submissions indicated elsewhere in this contract to be submitted with payment, such as updated progress schedules, updated submittal registers, etc.

(4) The following certification executed by a responsible official of the organization authorized to bind the firm. A "responsible official" would be either a corporate officer, partner, or owner, in the case of a sole proprietorship

I hereby certify, to the best of my knowledge and belief, that –

(a) The amounts requested are only for performance in accordance with the specifications, terms and conditions of the contract;

(b) Payments to subcontractors and suppliers have been made from previous payments received under the contract and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract requirements and the requirements of chapter 39 of Title 31, United States Code; and

(c) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

(d) All required prime and subcontractor payrolls have been submitted

(Name)

(Title)

(Date)

c. The Government shall designate the office or person(s) who shall first receive the invoice submissions and the Contractor shall be so notified at the preconstruction conference. In addition to the designated Project Engineer, the Contractor shall at the same time submit one copy of the detailed breakdown and the Eng Form 93 and 93a Form to the Area Engineer.

d. The Government representative shall return any request for payment which is deemed defective within 7 days of receipt and shall specify the defects. If the defect concerns a disagreement as to the amount of work performed and/or the amount of the payment being submitted, the Government and the contractor's representative should meet to resolve the differences and reach an agreement. Upon agreement, the contractor shall submit a new breakdown and Eng Form 93 (and 93a) and any other submissions requiring correction. These will be incorporated with the previous submittal and will then constitute a proper invoice.

e. If agreement cannot be reached, the Government shall determine the proper amount per Contract Clause, PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS and process the payment accordingly. In this event, a "proper invoice" for Prompt Payment Act purposes will not have been submitted to the Government.

f. The Government shall pay the contractor in accordance with the following time frames:

(1) Progress Payments - From the date a "proper invoice" is received, in accordance with subparagraphs b and d of this clause, the Government will issue a check within 14 calendar days.

(2) Reduction in Retainage Payment. If during the course of the contract, a reduction in retainage payment is required, the Government shall issue a check within 30 calendar days after the approval of the release to the contractor by the Contracting Officer or his authorized representative.

(3) Final Payment. A final payment request shall not be considered valid until the contractor has fulfilled all contract requirements including all administrative items, payrolls, warranties, etc. and has submitted a release of claims. When the contractor has fulfilled all contract requirements and a "proper invoice" has been submitted, the Government shall issue a check within 30 days from the date of acceptance of the project by the Contracting Officer.

21. SUBMISSION OF CLAIMS

The following shall be submitted to the Contracting Officer at the following address: U.S. Army Corps of Engineers, New York District, 26 Federal Plaza, New York, New York 10278-0090:

- a. claims referencing or mentioning the Contracting Disputes Act of 1978
- b. requests for a written decision by the Contracting Officer
- c. claims certified in accordance with the Contract Disputes Act of 1978

No other Government representative is authorized to accept such requests. A copy shall also be provided to the Authorized Representative of the Contracting Officer.

The Contractor shall also provide the Contracting Officer with a copy of any requests for additional time, money or interpretation of contract requirements which were provided to the Authorized Representative of the Contracting Officer and which have not been resolved after 90 days.

22. PROGRESS PAYMENTS

Progress Payments made pursuant to the PAYMENTS TO CONTRACTOR clause for any item of work in the bid schedule shall be based on the contract unit price or lump sum amount set forth in the bid schedule for that item of work. If the amount of the unit price or lump sum bid for any item of work is in excess of 125% of the Government estimate for such item, the Contracting Officer may require the contractor to produce cost data to justify the price of the bid item. Failure to justify the bid item price to the satisfaction of the Contracting Officer may result in payment of an amount equal to 125% of the Government estimate for such bid item upon completion of work on the item and payment of the remainder of the bid item price upon final acceptance of all contract work.

23. PERFORMANCE EVALUATION OF CONTRACTOR (1985 JAN HQ USACE)

As a minimum, the Contractor's performance will be evaluated upon final acceptance of the work. However, interim evaluation may be prepared at any time during contract performance when determined to be in the best interest of the Government.

The format for the evaluation will be SF 1421, and the Contractor will be rated either outstanding, satisfactory, or unsatisfactory in the areas of Contractor Quality Control, Timely Performance, Effectiveness of Management, Compliance with Labor Standards, and Compliance with Safety Standards. The Contractor will be advised of any unsatisfactory rating, either in an individual element or in the overall rating, prior to completing the evaluation, and all contractor comments will be made a part of the official record. Performance Evaluation Reports will be available

to all DoD Contracting Officers for their future use in determining Contractor responsibility, in compliance with DFARS 36.201(c)(1).

24. SAFETY AND HEALTH REQUIREMENTS MANUAL

The Contractor shall comply with all pertinent provisions of the latest edition of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385- 1-1, in effect on the date of the solicitation. The latest edition, as referenced in the Accident Prevention Clause of the CONTRACT CLAUSES, is dated November 2003. Changes of EM 385-1-1 are available at <http://www.hg.usace.army.mil> (at the HQ homepage, select Safety and Occupational Health). The Contractor shall be responsible for complying with the current edition and all changes posted on the web as of the effective date of this solicitation.

Before commencing the work, the Contractor shall - (1) Submit a written proposal for implementing the Accident Prevention Plan; and (2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

25. AUTHORIZED CONSTRUCTION AREA AND TRESPASSING

The Contractor shall not inflict damage upon land and properties outside the authorized construction area by unwarranted entry upon, passage through, damage to, or disposal of, material on such land or property. The Contractor may make a separate agreement with any other party, regarding the use of, or right to, land or facilities outside the contract area. If such an agreement is made, it shall be in writing and a copy shall be furnished the Contracting Officer. The Contractor shall hold and save the Government, its officers, and agents free from liability of any nature or kind arising from any trespassing or damage occasioned by his operations.

26. DAMAGE TO WORK

The responsibility for damage to any part of the permanent work shall be as set forth in the article of the contract clause entitled "PERMITS AND RESPONSIBILITIES". However, if in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood, earthquake, hurricane, severe coastal storm or tornado, which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor will make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit or lump-sum prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such work, an equitable adjustment, pursuant to Contract Clause entitled CHANGES, will be made as full compensation for the repairs of that part of the permanent work for which there are not applicable contract unit or lump-sum prices. Except as herein provided, damage to all work, utilities, materials, equipment, and plant, including temporary construction and utilities, pavements, and other property along the routes used by the Contractor's pipelines and/or land vehicles, shall be repaired to the satisfaction of the Contracting Officer, the State of Vermont, and the utilities companies, at the contractor's expense regardless of the cause of such damage.

27. ENVIRONMENTAL LITIGATION (1974 NOV) (OCE)

a. If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract.

The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

b. The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment. (ECI 7-671.10)

28. LABOR-ADDITIONAL REQUIREMENTS

Fringe benefits statement: The method of payment of applicable fringe benefits will be indicated on DD Form 879, Statement of Compliance, and attached to each weekly payroll.

29. TIME EXTENSIONS (APR 1984)

a. Notwithstanding any other provisions of this contract, it is mutually understood that the time extensions for changes in the work will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements so delayed and that the remaining contract completion dates for all other portions of the work will not be altered and may further provide for an equitable readjustment of liquidated damages under the new completion schedule. (FAR 52.211-13)

b. Time Extensions for Unusually Severe Weather.

(1) This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

(2) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(31)	(28)	(31)	(9)	(8)	(9)	(8)	(10)	(7)	(9)	(10)	(31)

(3) Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph 2, above, the contracting officer

will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

30. VEHICULAR AND OTHER TRAFFIC CONTROL

The Contractor shall be required to provide and maintain barriers, signs, flagmen and warning devices during construction and hauling operations, which may interfere with park operations and use, and vehicular and other traffic. The Contractor shall also be required to effect necessary traffic control as required by the appropriate agencies. All safety precautions shall be subject to the approval of the Contracting Officer with concurrence from the State of Vermont, Department of Forests, Parks, and Recreation..

31. STORAGE AREAS

The Contractor may store his required materials and equipment within the "Work Limits" shown on the drawings. No storage will be allowed outside the designated work limits. The Contractor may make his own arrangements with parties or agencies involved for storage areas outside the work limits.

32. VERIFICATION OF SMALL BUSINESS UTILIZATION

Not required.

33. PRECONSTRUCTION CONFERENCE

a. A pre-construction conference will be arranged by the Contracting Officer, or his Representative, after award of contract and before commencement of work. The Contracting Officer's representative will notify the Contractor of the time and date set for the meeting. At this conference the Contractor will be oriented with respect to Government procedures and line of authority, contractual, administrative, and construction matters. Additionally, a schedule of required submittals will be discussed.

b. The Contractor shall bring to this conference the following items in either completed or draft form:

- The Contractor's order of work.
- Accident Prevention Plan. (See Accident Prevention Clause in Section 00700 and paragraph 25 of this Section concerning Safety and Health Requirements Manual)
- Quality Control Plan. (See Section 01451)
- Letter appointing Superintendent.
- List of subcontractors, if any.

34. COORDINATION CONFERENCES

Routine coordination conferences will be scheduled by the Contracting Officer throughout the life of this contract. Coordination conferences will be held to discuss contract administration, Contractor quality control, phasing, scheduling, and other aspects relating to this construction. The Corps of Engineers and the Contractor, and State of Vermont Representatives will be represented at each of these meetings. Similar information concerning replacement personnel shall be forwarded to the Contracting Officer, should any replacement be required at any time during the life of this contract. Coordination conferences will be scheduled to occur on a weekly basis.

35. CONTRACTOR WORKING HOURS

Unless specifically authorized by the Contracting Officer, contract work shall be restricted to the hours of 7:00 A.M. to 6:00 P.M., Mondays through Saturdays. No work will be permitted on Sundays and Federal and State legal holidays. The Contractor shall comply with paragraph 01.c.04 of EM 385-1-1, the U.S. Army Corps of Engineers Safety and Health Requirements Manual, in effect on the date of this solicitation.

36. PARTNERSHIP IMPLEMENTATION PLAN

Not required.

37. GOVERNMENT RESIDENT MANAGEMENT SYSTEM

Not required.

38. CONSTRUCTION PROJECT SIGNS AND PUBLIC SAFETY SIGN

The Contractor shall construct signs, one for project identification, one to show on-the-job safety performance, and public safety signs as needed. Sample sign drawings together with mounting and fabrication details are provided at the end of this section. The signs shall be erected within 15 calendar days after the date of Notice to Proceed. The project identification and safety performance signs are to be displayed side by side and mounted for reading by passing viewers. The public safety sign shall be the same size as the project signs.

Exact placement location will be designated by the Contracting Officer. Panels are fabricated using HDO (High Density Overlay) plywood with dimensional lumber uprights and bracing. The sign faces are non-reflecting vinyl. All legends are to be die-cut or computer-cut in the sizes and type-faces specified and applied to the white panel background following the graphic formats shown on the attached sheets. The Communications Red panel on the left side of the construction project sign with Corps signature (reverse version) is screen printed onto the white background.

The Contractor shall maintain the signs in good condition throughout the construction period. No separate payment will be made for erecting and maintaining the signs and all costs in connection therewith will be considered the obligation of the Contractor. Upon completion of the project, the Contractor shall remove the signs from the project site.

39. INSURANCE PROCURED BY CONTRACTOR

a. The Contractor shall procure and maintain during the entire period of this performance under this contract the attached insurance policies:

(1) Commercial General Liability Insurance in limits of not less than Five Million Dollars (\$5,000,000) combined single limit per occurrence for bodily injury, death, personal injury and property damage, including but not limited to coverage for Broad Form Property Damage. Such coverage shall not contain any environmental exclusion clause and there shall be no exclusions for property damage arising out of explosion, collapse or underground property damage hazards and no exclusion for waterfront activities.

(2) The policies described above shall be endorsed (i) to include The Town of Waterbury and State of Vermont as additional insured and (ii) to provide that notice of an occurrence to the insurance company from any insured shall serve as notice from all insured.

(3) Comprehensive Automobile Liability Insurance in limits of not less than five million dollars combined single limit per occurrence for bodily injury, death, and property damage covering all owned, non-owned and hired vehicles in connection with the work to be performed in connection with this permit.

(4) Certificates of Insurance evidencing the issuance of all insurance required hereby, and guaranteeing at least thirty (30) days prior notice to the Government of cancellation or non-renewal, shall be delivered to The Vermont Department of Environmental Protection, and Town of Waterbury, prior to entry of the Government's contractors upon the project area, or, in the case of new or renewal policies replacing any policies expiring during the period, no later than thirty (30) days before the expiration dates of such expiring policies.

b. Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or statement of the above required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation or any material change in the policies adversely affecting the interests of the Government in such insurance shall not be effective for such a period as may be prescribed by the laws of the State in which this contract is to be performed and in no event less than thirty (30) days after written notice thereof to the Contracting Officer.

c. The Contractor agrees to insert the substances of this clause, including paragraph c., in all subcontracts hereunder.

40. LABOR SURPLUS AREA EXPENDITURE REQUIREMENTS (JUL 1978)

a. The site of the construction work is located in an area determined by the Secretary of Labor to be a Labor Surplus Area. Accordingly the Contractor hereby agrees to perform a substantial portion of the contract work in this or in any other labor surplus area. "Substantial portion" means the aggregate costs that will be incurred by the Contractor and his first-tier subcontractors and suppliers, on account of manufacturing, production, or services performed in this or any labor surplus area, and the costs that will be incurred by second-tier and lower-tier subcontractors on the construction site will exceed fifty percent (50%) of the price of this contract.

b. Upon request, the Contractor shall furnish to the Contracting Officer data to substantiate that this obligation is satisfied.

b. The Contracting Officer will furnish upon request a list of labor surplus areas.

41. PERMITS

a. The permits required for this project, Shoreline Encroachment Permit and the Individual Discharge Permit for Storm Water Runoff from Construction Sites. The Contractor shall be required to sign the Request for Co-Permittee Status form once the Individual Discharge Permit for Storm Water Runoff is issued.

42. BIOENGINEERING SPECIALISTS

A bioengineering professional with experience in constructing steep, vegetated slopes shall be present to oversee the work of the contractor. This professional shall have at a minimum a bachelor degree in one of the following disciplines: landscape architecture, physical science, or engineering, with an emphasis on natural resources. Must be familiar with local nurseries for plant materials, working with construction schedules; slope stability; and bioengineering slope criteria. They must have experience in New England for developing bioengineering solutions for stream bank and slope stabilization for a large scale projects. They must have experience in constructing/altering vegetated landscapes in Vermont, or within a 100 mile radius of the project site. They must have experience in preparing at least 7 sites for plantings, using erosion control fabrics and live stakes or branches.

The bioengineering specialist shall visit the site once a week while the earthwork is being done, and twice a week while the vegetation is being planted. The bioengineering specialist will direct the contractor to perform alterations when necessary. The bioengineering specialist will directly report progress to the contracting officer, and the

contracting officer will insure that the advice of the bioengineering specialist is considered by the contractor. The bioengineering professional will prepare site status sheets for all days they are at the site for the contracting officer. The bioengineering specialist will consult with and address any concerns of the project design members from USACE or the Vermont Agency of Natural Resources.

43. REFERENCE

The State of Vermont Agency of Transportation Specifications for Construction – 2001 as reference for road construction within the park can be found in Section 00800A.

SECTION 00800A

The following specifications are excerpted from State of Vermont Agency of Transportation Standard Specifications for Construction - 2001.

SECTION 401 - AGGREGATE SURFACE COURSE

401.01 DESCRIPTION. This work shall consist of furnishing and placing a wearing course of approved aggregate on a prepared surface.

401.02 MATERIALS. Materials shall meet the requirements of the following Subsection:

Aggregate for Surface Course and Shoulders..... 704.12

401.03 PLACING. The aggregate shall be placed and properly shaped using equipment that allows the typical cross-section and design grade to be attained. Should aggregate segregation occur, the Contractor shall remove and replace the segregated material or manipulate it until uniform gradation is obtained. The aggregate shall be thoroughly compacted with an approved power roller with a mass (weight) not less than 7 metric tons (8 tons), or an approved rubber tired roller, or by other approved methods.

The maximum layer thickness for placement of any aggregate surface material shall be 150 ± 50 mm (6 ± 2 inches) after compaction. All layers shall be placed and compacted at approximately equal thickness. In the placement of layers, all joints shall be staggered at least 300 mm (12 inches).

After each layer of surface or shoulder material is placed, it shall be thoroughly compacted to a uniform density of not less than 95 percent of the maximum dry density determined by AASHTO T 99, Method C. Suitable and effective equipment, meeting the approval of the Engineer, shall be used to obtain a true and even surface during compaction. All holes or depressions found during the compacting shall be filled with additional material, reworked, and compacted as shown on the Plans. If required, water shall be uniformly applied over the aggregate material during compaction in an amount necessary to produce proper consolidation.

401.04 METHOD OF MEASUREMENT. The quantity of Aggregate Surface Course to be measured for payment will be the number of cubic meters (cubic yards) used in the complete and accepted work, as determined by the plan dimensions of the compacted material or as ordered by the Engineer. No allowance will be made for material placed to a depth greater than that shown on the Plans unless ordered by the Engineer.

401.05 BASIS OF PAYMENT. The accepted quantity of Aggregate Surface Course will be paid for at the Contract unit price per cubic meter (cubic yard). Payment will be full compensation for performing the work specified and for furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Pay Unit

401.10 Aggregate Surface Course

Cubic Meter
(Cubic Yard)

SECTION 704 - AGGREGATES

704.01 FINE AGGREGATE FOR CONCRETE. Fine aggregate for concrete shall consist of natural sand washed in an approved manner or a combination of washed natural sand and stone screenings. The stone screenings shall not exceed 50 percent, by mass (weight), of the combination.

Fine aggregate shall consist of clean, hard durable grains, uniformly graded from coarse to fine, and shall be free from injurious amounts of organic matter or other harmful substances.

- (a) **Grading.** The fine aggregate shall meet the requirements of the following table:

TABLE 704.01A - FINE AGGREGATE FOR CONCRETE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
9.5 mm (3/8 inch)	100
4.75 mm (No. 4)	95 to 100
1.18 mm (No. 16)	50 to 80
600 μ m (No. 30)	25 to 60
300 μ m (No. 50)	10 to 30
150 μ m (No. 100)	2 to 10

The fineness modulus on that portion of material passing the 9.5 mm (3/8 inch) sieve shall be determined by laboratory sieve test. This fineness modulus is the summation of the percentages of sand retained on the following sieve sizes: 150 μ m (No. 100), 300 μ m (No. 50), 600 μ m (No. 30), 1.18 mm (No. 16), 2.36 mm (No. 8), and 75 mm (No. 4) divided by 100. The minimum fineness modulus shall be 2.60 and the maximum shall be 3.10. Fine aggregate from any one source for any one designated mix having a variation in fineness modulus greater than ± 0.20 from the fineness modulus of a representative sample proposed for use may be rejected.

- (b) **Organic Impurities.** The fine aggregate shall show a color of not greater than two when determined in accordance with AASHTO T 21.
- (c) **Compressive Strength of Mortar.** When sand or a combination of stone screenings and sand is mixed with portland cement in the proportion of one part of cement to three parts of sand (or of the combination of stone screenings and sand) by mass (weight), according to the standard method of making 50 mm (2 inch) cubes, the resulting mortar at the age of three and seven days shall have a compressive strength of at least 100 percent of that developed in the same time by mortar of the same proportions and flow, made of the same cement and graded Ottawa sand, when tested in accordance with the requirements of AASHTO T 106. Only one series of mortar cube compressive strength tests will be required for each fine aggregate source in any one calendar year unless the Engineer deems additional testing necessary.
- (d) **Soundness.** When there is any question of either soft or laminated pieces being detrimental to any aggregate, a soundness test shall be performed on the aggregate in accordance with AASHTO T 104. The weighted average percentage of loss shall be not more than 8 percent, by mass (weight), when subjected to five cycles of the sodium sulfate soundness test.

704.02 COARSE AGGREGATE FOR CONCRETE. Coarse aggregate for concrete shall consist of clean, hard, crushed stone or washed crushed gravel, uniformly graded. The blending of crushed stone and crushed gravel in the stockpile shall not be permitted. It shall be free from deleterious material, pieces that are structurally weak, and

when proportioned in concrete shall not adversely affect the structural integrity or durability of the concrete when subjected to freezing and thawing. It shall also meet the following requirements:

- (a) Grading. The coarse aggregate shall be furnished in the required separate size(s) for the specified class of concrete and shall meet the requirements of the following tables:

TABLE 704.02A - GRADATION REQUIREMENTS
FOR 9.5 MM (3/8 INCH) STONE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
12.5 mm (1/2 inch)	100
9.5 mm (3/8 inch)	85 to 100
4.75 mm (No. 4)	10 to 30
2.36 mm (No. 8)	0 to 10
1.18 mm (No. 16)	0 to 5

TABLE 704.02B - GRADATION REQUIREMENTS
FOR 19.0 MM (3/4 INCH) STONE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
25.0 mm (1 inch)	100
19.0 mm (3/4 inch)	90 to 100
9.5 mm (3/8 inch)	0 to 55
4.75 mm (No. 4)	0 to 10
2.36 mm (No. 8)	0 to 5

TABLE 704.02C - GRADATION REQUIREMENTS
FOR 37.5 MM (1 1/2 INCH) STONE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
45 mm (1 3/4 inch)	100
37.5 mm (1 1/2 inch)	90 to 100
25.0 mm (1 inch)	20 to 55
19.0 mm (3/4 inch)	0 to 15
9.5 mm (3/8 inch)	0 to 5

- (b) Percent of Wear. When the coarse aggregate is composed of crushed stone or crushed gravel, the percent of wear of the aggregate shall be not more than 35 percent when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the aggregate shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (c) Fractured Faces. When crushed gravel is used as coarse aggregate, at least 50 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall have at least one fractured face.
- (d) Thin and/or Elongated Pieces. Not more than 10 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall consist of thin and/or elongated pieces.
- (e) Soundness. The soundness of this material shall conform to the requirements specified in Subsection 704.01(d).
- (f) Aggregate Failure. Coarse aggregate that fractures when used in a test cylinder, at a strength less than the minimum compressive strength of the class of concrete tested, may be cause for rejection of the coarse aggregate.

704.03 AGGREGATE FOR PLANT MIXED BASE COURSE. Aggregate for plant mixed base course shall consist of clean, hard, crushed stone or crushed gravel. The blending of crushed stone and crushed gravel may be permitted if, in the opinion of the Engineer, the materials to be blended are equal in quality and are compatible. The

several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resulting gradation conforms to the requirements specified in Subsection 303.02(b). The aggregate shall be reasonably free from dirt, deleterious material, and pieces that are structurally weak and shall meet the following requirements:

- (a) Percent of Wear. When the coarse aggregate is composed of crushed stone or crushed gravel, the percent of wear of the aggregate shall be not more than 35 percent when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the aggregate shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (b) Fractured Faces. When crushed gravel is used, at least 75 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall have at least two fractured faces.
- (c) Thin and/or Elongated Pieces. Not more than 10 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall consist of thin and/or elongated pieces.
- (d) Soundness. The soundness of this material shall conform to the requirements specified in Subsection 704.01(d).

704.04 GRAVEL FOR SUBBASE. Gravel for subbase shall consist of material reasonably free from silt, loam, clay, and organic matter. It shall be obtained from approved sources and shall meet the following requirements:

- (a) Grading. The gravel shall meet the requirements of the following table:

TABLE 704.04A - GRAVEL FOR SUBBASE

Sieve Designation	Percentage By Mass (Weight) Passing Square Mesh Sieves
4.75 mm (No. 4)	20 to 60
150 μ m (No. 100)	0 to 12
75 μ m (No. 200)	0 to 6

The gravel shall be uniformly graded from coarse to fine, and the maximum size stone particles shall not exceed 67 percent of the thickness of the layer being placed.

- (b) Percent of Wear. The percent of wear of the gravel shall be not more than 50 percent when tested in accordance with AASHTO T 96.

704.05 CRUSHED GRAVEL FOR SUBBASE. Crushed gravel for subbase shall be produced from natural gravels or crushed quarried rock and shall be a material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

- (a) Grading. The crushed gravel shall be uniformly graded from coarse to fine and shall meet the requirements of the following table:

TABLE 704.05A - CRUSHED GRAVEL FOR SUBBASE

Grading	Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
Coarse	100 mm (4 inch)	95 to 100
	4.75 mm (No. 4)	25 to 50
	150 μ m (No. 100)	0 to 12
	75 μ m (No. 200)	0 to 6
Fine	50 mm (2 inch)	100
	37.5 mm (1 1/2 inch)	90 to 100
	4.75 mm (No. 4)	30 to 60
	150 μ m (No. 100)	0 to 12
	75 μ m (No. 200)	0 to 6

- (b) Percent of Wear. The percent of wear of the crushed gravel shall be not more than 40 percent when tested in accordance with AASHTO T 96.
- (c) Fractured Faces. At least 50 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least one fractured face.

704.06 DENSE GRADED CRUSHED STONE FOR SUBBASE. Dense graded crushed stone for subbase shall consist of clean, hard, uniformly graded, crushed stone. It shall be sufficiently free from dirt, deleterious material, and pieces that are structurally weak and shall meet the following requirements:

- (a) Source. This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.
- (b) Grading. This material shall meet the requirements specified in the following table:

TABLE 704.06A - DENSE GRADED CRUSHED STONE FOR SUBBASE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
90 mm (3 1/2 inch)	100
75 mm (3 inch)	90 to 100
50 mm (2 inch)	75 to 100
25.0 mm (1 inch)	50 to 80
12.5 mm (1/2 inch)	30 to 60
4.75 mm (No. 4)	15 to 40
75 µm (No. 200)	0 to 6

- (c) Percent of Wear. The percent of wear of the crushed stone shall be not more than 40 percent when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the crushed stone shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (d) Thin and/or Elongated Pieces. Not more than 30 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall consist of thin and/or elongated pieces.
- (e) Filler. The approved filler shall be obtained from approved sources and shall consist of clean, hard, uniform graded, crushed stone and/or stone screenings produced by the crushing process. The material shall consist of hard durable particles, sufficiently free from dirt, organic material, structurally weak pieces, and other deleterious materials and shall comply with the requirements of parts (a), (c), and (d) above.

Approved filler material shall meet the requirements specified in the following table:

TABLE 704.06B - APPROVED FILLER

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
19.0 mm (3/4 inch)	100
12.5 mm (1/2 inch)	70 to 100
4.75 mm (No. 4)	50 to 90
150 µm (No. 100)	0 to 12
75 µm (No. 200)	0 to 6

704.07 GRAVEL BACKFILL FOR SLOPE STABILIZATION. Gravel backfill for slope stabilization shall conform to the requirements specified in Subsection 704.04(a).

704.08 GRANULAR BACKFILL FOR STRUCTURES. Granular backfill for structures shall be obtained from approved sources. It shall consist of satisfactorily graded, free draining granular material reasonably free from loam, silt, clay, and organic material.

The granular backfill shall meet the requirements specified in the following table:

TABLE 704.08A - GRANULAR BACKFILL FOR STRUCTURES

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
75 mm (3 inch)	100
4.75 mm (No. 4)	45 to 75
150 μ m (No. 100)	0 to 12
75 μ m (No. 200)	0 to 6

704.09 BACKFILL FOR MUCK EXCAVATION. Backfill for muck excavation shall consist of granular material or blasted rock broken into various sizes that will form a compact embankment with a minimum of voids.

When granular material is used, it shall meet the requirements specified in Subsection 703.04.

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT. Coarse aggregate for bituminous concrete pavement shall consist of clean, hard, crushed stone or crushed gravel, and be uniformly graded. The blending of crushed stone and crushed gravel may be permitted in the binder course only, if in the opinion of the Engineer the materials to be blended are equal in quality and are compatible. It shall be sufficiently free from dirt, deleterious material, and pieces that are structurally weak. The coarse aggregate shall be considered that portion of material coarser than the 2.36 mm (No. 8) sieve.

Fine aggregate for bituminous concrete pavement shall consist of stone screenings or a combination of stone screenings, screened natural and/or manufactured sands, and other fine aggregates, such that at least 95 percent of any individual stockpile of the fine aggregate shall pass a 9.5 mm (3/8 inch) sieve. The minimum percentage, by mass (weight), of the blended material passing the 2.36 mm (No. 8) sieve that must be stone screenings shall be as shown in Table 406.03B, unless otherwise authorized in writing by the Engineer.

(a) Grading.

- (1) Coarse Aggregate. Coarse aggregate shall be furnished in at least three nominal sizes for Type I mix and in at least two nominal sizes for Types II and III mix.

The cold feed coarse aggregate shall meet the requirements specified in the following table:

TABLE 704.10A - COARSE AGGREGATE

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves			
	25.00 mm (1 inch) Size	19.0 mm (3/4 inch) Size	12.5 mm (1/2 inch) Size	9.5 mm (3/8 inch) Size
37.5 mm (1 1/2 inch)	100			
25.0 mm (1 inch)	90 to 100	100		
19.0 mm (3/4 inch)		90 to 100	100	
12.5 mm (1/2 inch)	0 to 10		90 to 100	100
9.5 mm (3/8 inch)		0 to 10		90 to 100
4.75 mm (3/8 inch)			0 to 10	
2.36 mm (No. 8)				0 to 10

- (2) Fine Aggregate. The gradation of the fine aggregate shall be such that, when combined with a coarse aggregate, the composite aggregate shall meet the specified gradation requirements for bituminous

concrete as specified in Subsection 406.02(a). The process of blending the fine and coarse aggregates shall be accomplished through the use of separate bins. Blending in the stockpile will not be permitted.

The percentage of fine aggregate passing the 2.36 mm (No. 8) sieve shall remain uniform within a tolerance of ± 15 percent for any one mix design. Material produced that does not meet this tolerance may be stockpiled separately and used after an appropriate change is made in the mix design.

- (3) Recycled Asphalt Pavement. When recycled asphalt pavement (RAP), is used to produce bituminous concrete pavement, the resulting mixture will meet all specification requirements for the type(s) of mix specified. The grade(s) of asphalt for use with the recycled mix will be determined by the Engineer based on the characteristics of the reclaimed asphaltic concrete.

The bitumen component of the RAP shall be free of significant contents of solvents, tars, or other contaminating substances that will make the RAP unacceptable for recycling as determined by the Engineer.

Should the characteristics of any proposed material for recycling be such that an acceptable mixture cannot be produced and/or maintained, the recycled mix will not be allowed for use on the project.

When a mix design is submitted using RAP, the Contractor shall submit an analysis of the RAP material to include aggregate gradation, asphalt content and recovered asphalt cement values. The recovered values will be obtained by using AASHTO T 170. The information required will include the penetration at 25 °C (77 °F), 100 g five seconds; absolute viscosity at 60 °C (140 °F), poises; and kinematic viscosity at 135 °C (275 °F), centistokes. A minimum of four samples is required to produce design data.

The RAP from different projects shall be separated in individual stockpiles according to specific pavement source and type of mix by the Contractor, unless otherwise directed by the Engineer. A separate mix design will be required for each specific pavement source, unless otherwise directed by the Engineer.

- (b) Percent of Wear. When the coarse aggregate is composed of crushed stone or crushed gravel, the percent of wear of the aggregate shall be not more than 35 percent when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the aggregate shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (c) Fractured Faces. When crushed gravel is used as coarse aggregate, at least 75 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least two fractured faces.
- (d) Thin and/or Elongated Pieces. Not more than 10 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall consist of thin and/or elongated pieces.
- (e) Mineral Filler. The mineral filler shall consist of approved limestone dust, talc dust, or other approved materials and shall be added to the aggregate if required.
- (f) Soundness. The soundness shall conform to the requirements of Subsection 704.01(d), except the percentage of loss shall be not more than 12 percent, by mass (weight), and shall apply to wearing course aggregates only.
- (g) Control of Aggregate Stockpiles. Before the start of bituminous concrete paving operations and throughout the duration of the paving operation, the cold feed aggregate stockpiles shall each contain at least 1000 metric tons (1000 tons) of accepted aggregate, or the job requirements when less than 1000 metric tons (1000 tons).

The addition of unacceptable material to an accepted stockpile shall result in the rejection of the entire stockpile.

The stockpiles shall be separated by partitions or separated to the satisfaction of the Engineer to prevent intermixing of the stockpiles.

All stockpiles shall be maintained at the mixing plant site, unless otherwise authorized in writing by the Engineer.

The respective sources of all aggregates to be used in the wearing course shall remain the same for the entire project, unless otherwise authorized in writing by the Engineer.

704.11 AGGREGATE FOR BITUMINOUS SURFACE TREATMENT. The peastone and stone grits shall consist of washed, crushed gravel or crushed stone. It shall be reasonably free from dirt, deleterious material, and pieces that are structurally weak.

The sand shall be washed, natural sand and shall consist of clean, hard, durable grains, reasonably free from dirt and deleterious material.

- (a) Grading. The peastone, stone grits, and sand shall meet the requirements of the following table:

TABLE 704.11A - AGGREGATE FOR BITUMINOUS SURFACE TREATMENT

	Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
Peastone	19.0 mm (3/4 inch)	100
	16.0 mm (5/8 inch)	90 to 100
	4.75 mm (No. 4)	0 to 5
Stone Grits	12.5 mm (1/2 inch)	100
	9.5 mm (3/8 inch)	90 to 100
	2.36 mm (No. 8)	0 to 10
	75 μ m (No. 200)	0 to 3
Sand	16.0 mm (5/8 inch)	100
	4.75 mm (No. 4)	90 to 100
	150 μ m (No. 100)	0 to 8

- (b) Percent of Wear.

(1) Crushed Gravel. When the aggregate is composed of crushed gravel, the percent of wear shall be not more than 35 percent when tested in accordance with AASHTO T 96. No wear requirements shall apply when grits are used as a shoulder treatment.

(2) Crushed Stone. When the aggregate is composed of crushed stone, the percent of wear of the aggregate shall be not more than 35 percent when tested in accordance with AASHTO T 96. No wear requirements shall apply when grits are used as a shoulder treatment.

- (c) Fractured Faces. When crushed gravel is used, at least 50 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall have at least one fractured face.

- (d) Thin and/or Elongated Pieces. Not more than 15 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall consist of thin and/or elongated pieces.

704.12 AGGREGATE FOR SURFACE COURSE AND SHOULDERS. Aggregate for surface course and shoulders shall consist of clean, hard, gravel, crushed gravel or crushed stone. It shall be reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

- (a) Grading. This material shall be uniformly graded from coarse to fine and shall meet the requirements of the following table:

TABLE 704.12A - AGGREGATE FOR SURFACE COURSE AND SHOULDERS

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
37.5 mm (1 1/2 inch)	100
25.0 mm (1 inch)	90 to 100
4.75 mm (No. 4)	45 to 65
150 μ m (No. 100)	0 to 15
75 μ m (No. 200)	0 to 12

- (b) Percent of Wear. The percent of wear when tested in accordance with AASHTO T 96 shall be not more than 40 percent for material used as aggregate surface course or not more than 50 percent for material used as aggregate shoulders.

704.13 SAND FOR CEMENT MORTAR. Sand for cement mortar shall be a washed natural sand and shall consist of clean, hard, durable grains. It shall be uniformly graded from coarse to fine, and shall be free from injurious amounts of organic matter or other harmful substances.

- (a) Grading. This material shall meet the requirements of the following table:

TABLE 704.13A - SAND FOR CEMENT MORTAR

Sieve Designation	Percentage by Mass (Weight) Passing Square Mesh Sieves
2.36 mm (No. 8)	100
300 μ m (No. 50)	15 to 40
150 μ m (No. 100)	0 to 10
75 μ m (No. 200)	0 to 5

- (b) Organic Impurities. The sand shall show a color of not greater than two when determined in accordance with AASHTO T 21.

704.14 LIGHTWEIGHT COARSE AGGREGATE FOR STRUCTURAL CONCRETE. Lightweight coarse aggregate for structural concrete shall be clean, hard, and uniformly graded. It shall be reasonably free from dirt, deleterious material, and pieces that are structurally weak. It shall meet the following requirements:

- (a) General Characteristics. Two general types of lightweight aggregates may be used:
- (1) Aggregates prepared by expanding, calcining, or sintering products such as blast furnace slag, clay, shale, or slate. Other raw materials may be used if the resulting prepared aggregates meet the requirements of these Specifications.
 - (2) Aggregates prepared by crushing, screening, and cleaning natural lightweight materials such as pumice, scoria, or tuff.
- (b) Grading. The grading shall conform to the requirements designated in Table 704.02B.
- (c) Percent of Wear. The percent of wear shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (d) Thin and/or Elongated Pieces. The thin and/or elongated pieces shall conform to the requirements specified in Subsection 704.02(d).
- (e) Soundness. The soundness shall conform to the requirements specified in Subsection 704.01(d).
- (f) Density. The maximum dry loose density of the lightweight coarse aggregate shall not exceed 880 kg/m³ (55 pounds per cubic foot) when tested in accordance with AASHTO T 19/T 19M. The density of lightweight aggregate shall not differ by more than 10 percent from samples submitted for acceptance tests.

(End of Summary of Changes)